

REMARKS

The present application includes claims 1-8 and 10-34. Claims 1-8 and 10-34 were rejected by the Examiner. By this Response, claims 1, 8, 13, 15, 21-22, 28, and 35-38 have been amended.

Claims 1-8 and 10-41 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner submits that the limitation “in relation to a reference coordinate system” is not enabled in the disclosure of the present application. However, the Applicant refers the Examiner to at least paragraphs 6-7 and 25 of the present application. The Applicant submits that the disclosure of paragraphs 6-7 and 25 with respect to a reference coordinate system is sufficient to enable obtaining position and orientation information in relation to a reference coordinate system for one of ordinary skill in the art at the time of the present invention. Thus, the Applicant respectfully submits that the Examiner’s rejection should be withdrawn.

Claims 35-38 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for referring to claim 1 as a system when claim 1 is directed to a transponder. By this response, claims 35-38 have been amended to correctly refer to the transponder. Therefore, the Applicant respectfully submits that the Examiner’s rejection should be withdrawn.

Claims 13-14 were rejected under 35 U.S.C. §102(b) as being anticipated by Stephen, U.S. Patent No. 4,302,846.

Claims 13-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Stephen, U.S. Patent No. 4,302,846, in combination with Arndt, U.S. Patent No. 6,097,189.

Claims 1-2, 8, 15-18, and 28-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over Herman, U.S. Patent No. 4,670,740, in view of Stephen, U.S. Patent No. 4,302,846 and Arndt, U.S. Patent No. 6,097,189.

Claims 1-3, 5, 7-8, 10-12, 15-29, and 32-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Augenblick, U.S. Patent No. 3,789,642, in view of Carney, U.S. Patent No. 5,446,447, in further view of Stephen, U.S. Patent No. 4,302,846 and Arndt, U.S. Patent No. 6,097,189.

Claims 30-31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Augenblick, U.S. Patent No. 3,789,642, in view of Carney, U.S. Patent No. 5,446,447 and Stephen, U.S. Patent No. 4,302,846, and Arndt, U.S. Patent No. 6,097,447, and in further view of Murdoch, U.S. Patent No. 5,153,583.

Claims 4,6, and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Augenblick, U.S. Patent No. 3,789,642, in view of Carney, U.S. Patent No. 5,446,447 and Stephen, U.S. Patent No. 4,302,846, and Arndt, U.S. Patent No. 6,097,189, in further view of Walton, U.S. Patent No. 4,918,416.

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Claims 35-41 were rejected under 35 U.S.C. 103(a) as being unpatentable over Herman, U.S. Patent No. 4,670,740, in combination with Stephen, U.S. Patent No. 4,302,846, and Arndt, U.S. Patent No. 6,097,189, and further in view of Dumoulin, U.S. Patent No. 5,443,066.

Claims 35-41 were rejected under 35 U.S.C. 103(a) as being unpatentable over Augenblick, U.S. Patent No. 3,789,642, in combination with Carney, U.S. Patent No. 5,446,447, Stephen, U.S. Patent No. 4,302,846, and Arndt, U.S. Patent No. 6,097,189, and further in view of Dumoulin, U.S. Patent No. 5,443,066.

The Applicant presented a twenty (20) page response on November 21, 2006 ("previous response"), which is incorporated herein by reference in its entirety. In that previous response, with respect to claims 13-14, the Applicant argued that Stephens fails to teach all the limitations of claims 13-14 and instead discloses a system for simply detecting the presence of an article in a zone. With respect to claims 1-2, 8-9, 15-18, and 28-29, the Applicant argued that Herman failed to teach all of the limitations 1-2, 8-9, 15-18, and 28-29 and instead also relates to presence detection, rather than position and orientation determination. With respect to claims 1-3, 5, 7-12, 15-29 and 32-34, the Applicant argued that a combination of Augenblick, Carney and Stephen failed to teach or suggest all of the limitations recited in claims 1-3, 5, 7-12, 15-29 and 32-34. Augenblick discloses a recognition system that reliably detects the presence of a particular harmonic generating target. Carney is a variant of an RFID system and not a

position and orientation tracking system. Rather, Augenblick and Carney simply identify the presence of a target having a certain identification code rather than tracking at least one of a position and an orientation of a transponder in relation to a reference coordinate system. The claims of the present application recite that the transponder is used in a wireless electromagnetic tracking system for determining position and orientation of the transponder in relation to a reference coordinate system. With respect to claims 30-31, the Applicant argued that a combination of Augenblick, Carney, Stephens, and Murdoch. Murdoch fails to teach or suggest all of the limitations of claims 30-31. Rather, Murdoch simply allows for the identification of an article associated with a transponder rather than tracking a position and an orientation of a transponder. Finally, with respect to claims 4, 6, and 31, the Applicant argued that a combination of Augenblick, Carney, Stephens, and Walton fails to teach or suggest all of the limitations of claims 4, 6, and 31. Rather, Walton simply allows for a plurality of identifiers to be distinguished rather than tracking a position and an orientation of a transponder.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the

claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP 706.02(j).

In addition to the Applicant's arguments and pursuant to the Examiner's comments in his final rejection, the Applicant has amended the pending claims of the present application in order to advance prosecution to achieve allowance of the pending claims. For example, the Applicant has amended the claims to specify that the transponder provides location information for an object in a medical environment. None of the references recite such a transponder. Additionally, the Applicant has amended the claims per the Examiner's suggestion to recite that a position and orientation of the transponder are determined in relation to a reference coordinate system based at least in part on a response signal produced by the wireless, passive transponder in response to an excitation or other such signal. None of the references teach or reasonably suggest such limitations.

The addition of Arndt and Dumoulin fails to cure the defects of the references above with respect to the pending claims. Arndt relates to determining position of a buried object that is buried or position in gas. Abstract. Arndt relies upon the relative permittivity and conductivity of the medium in which the object is located in an iterative technique to identify the buried object. Abstract. Dumoulin relates to a prior

radiofrequency tracking system illustrative of the fact that a wireless electromagnetic tracking system using a nonlinear passive transponder did not previously exist for medical applications involving a position and orientation determination. Dumoulin uses a “self-contained RF transmitter” rather than a wireless, passive transponder to broadcasts an RF signal to indicate transmitter location.

With respect to all of the references cited above in view of the pending claims, the Applicant respectfully submits that the determination of *position and orientation* is by definition a precise measurement, distinct from a mere acknowledgement of *presence* within a certain zone. In the medical context, it is important to be able to determine position and orientation rather than mere presence. For example, while in the retail context, it may be sufficient to establish that the transponder is within a room, simply establishing that the transponder is within a patient’s body or within an operating room is insufficient for medical use. Rather, tracking and determining a position of the transponder and an orientation of the transponder within or on the patient’s body is useful in a medical environment.

Furthermore, with respect to independent claim 21, none of the cited art teaches or suggests “encoding data in said signal based upon said variation in at least said second frequency.” Encoding data, as recited in claim 21, is distinct from frequency information of the signal. As claimed in claim 21, data may be transmitted to a system via a signal

from the transponder. The Applicant submits that the cited art fails to teach or suggest at least such a limitation, and, therefore, at least claim 21 should be allowable.

The Applicant submits that the amendments made to the pending claims in the present response do not require an additional search and should be entered and considered by the Examiner for allowance of some or all of the pending claims. Focusing on a medical environment was previously searched by the Examiner with respect to at least claim 36 (in relation to a patient anatomy), claim 37 (in conjunction with a medical device within a patient anatomy), claim 38 (overlays said reference coordinate system on a medical image), claim 40 (within a patient anatomy) and claim 41 (relating said reference coordinate system to a medical image). Additionally, determining both position and orientation was previously searched by the Examiner with respect to at least claim 35 (wherein said tracking system determines at least one position *and* at least one orientation of said transponder) and claim 39 (wherein said determining step further includes determining at least one position and at least one orientation of said transponder in relation to said reference coordinate system).

The Applicant respectfully submits that the pending claims are also patentable over the prior art made of record and not relied upon by the Examiner. For at least the reasons described above and in previous responses, the Applicant submits that the

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pending claims are allowable over the prior art of record and requests action to that affect.

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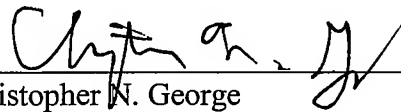
CONCLUSION

It is submitted that the present application is in condition for allowance and a Notice of Allowability is respectfully solicited. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited and encouraged to contact the Applicant at the number below.

The Commissioner is authorized to charge any necessary fees or credit any overpayment to the Deposit Account of GTC, Account No. 07-0845.

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Respectfully submitted,



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